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THE
CONNECTION

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In This Issue:

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When it comes to wholesale distribution and services, one name stands apart from the rest. Kendall. Kendall is an impressive array of products, services, and solutions. And Kendall is much more than that.

Expert consultation. Unsurpassed customer service. Exceptional training. Those aren't empty ideas. Kendall has made them common - expected - in a marketplace that for many has simply become about moving products from point A to point B.

That's because the people from Kendall - own Kendall. From the men and women who drive the trucks to the service experts who answer the phones - they have a stake in the company. And in your business.

Kendall is an extra degree of effort. Kendall is straightforward answers when you need them. Kendall is an unexpected level of honesty, professionalism and competence. They are the innovative ideas that get you to that next level.

Year after year, decade after decade, these are the knowledgeable people who have been there. And they're the people who will be there - investing in the products and solutions that help your operation work, the thinking and training that keep you and your company moving forward. These are the people who believe it is their job to help you succeed. To them, it's not just any other job. They're Kendall. They own it.

Kendall. We Own It.

> Kendall Electric is a member of The Kendall Group.
> Check out our corporate website and rebranding video at: *kendallgroup.com*

LEGRAND® INTEGREAT™ CABLE RETRACTORS FOR CONFERENCE ROOM TABLE SOLUTIONS

By: Don McSween - Sales Manager - Grand Rapids, MI

Tired of having your conference room table cluttered with audio/video cables coming out of conference table embedded outlet boxes? Or is it impossible to close the table box lid because the slack from A/V cables takes up too much space inside the box?

Check out the Legrand InteGreat cable retractors which will provide a clean efficient solution to the cable confusion that presently exists in most conference rooms. The Legrand retractables mount directly to an InteGreat series A/V table box or to the underside of your conference room table. Legrand offers four different retractable cable units to cover the most common audio, video, and communication needs: VGA, HDMI, 3.5mm Audio, and Cat 6.

The four different cables come with 5' of retractable cable that allows users to have easy access to the A/V or communication services provided in the conference room. With a simple pull, the cable locks into place or retracts back into the table box, keeping the conference room table neat and uncluttered. The retractor has a female input from the building infrastructure and a male connector on the output side. The one or multiple cable retractors can easily be installed horizontally under the table with optional Legrand mounting brackets (part # TBCRHMK). These brackets allow for stacking multiple retractor boxes side by side.

If you would like to see a sample of the Legrand retractable units or their in table boxes, please consult your Kendall Electric Account Manager or Network Specialist.

Real-Time Manufacturing Data Anywhere Any Time

By: Eric Aardema - Account Manager - Holland, MI

Are you looking to access your real-time manufacturing data anywhere any time? Look no further than Rockwell's latest addition to the FactoryTalk® software family, FactoryTalk VantagePoint EMI (Enterprise Manufacturing Intelligence).

What if key decision makers had real-time production information in a dashboard, trend, report or key performance indicator on a mobile device or desktop with information continually updated and available at any time? What if key decision makers were notified when production parameters moved outside their pre-set limits? Think about time spent gathering information and preparing simple reports - by the time the report is ready, the information can be out of date and irrelevant.

FactoryTalk VantagePoint EMI takes much of the cost out of the data gathering you are now doing by automating data across multiple systems and platforms. With the ability to access data anywhere at any time, data can be reported more quickly and efficiently, allowing faster informed decision making. Data can be accessed from anywhere or by anyone and can then be presented to the relevant user's role and responsibility. Machine operators can see machine level information. Plant managers can view plant-level key performance indicators and reports, saving time by replacing a manual production summary. Operations executives can see enterprise-wide reports, making it possible to compare different plants' production performance from a single location.

FEATURES

- Mobile Capabilities: FactoryTalk VantagePoint EMI enables frictionless productivity by providing out of the box web-enabled content browsing and display creation. Browse the UPM from any mobile device and create displays with simple drag and drop gestures!
- Create and publish a wide range of enterprise reports with the Advanced Reporting options using well known platforms like Microsoft Excel and SQL Server Reporting.
- Notifications provide information in time to make productive decisions. Configure notifications to send reports via email or SMS, based on events to ensure that important information is delivered when you need it!
- Time-to-value: Pre-configured reports, trends, dashboards, and flexible rapid development tools help save time and money.
- Connect to any common plant floor device or system. Premier connectivity to real-time data via FactoryTalk Live Data (Logix, PLC/SLCTM, FactoryTalk View, 3rd-party controllers, etc.) and historical data via FactoryTalk Historian PLUS connectivity to FactoryTalk Metrics, FactoryTalk ProductionCentre, FactoryTalk EnergyMetrix and other real-time and historical data sources.
- Secure reporting content in the model by defining user roles.
- Integrate FactoryTalk VantagePoint EMI reporting content using Excel Services or Web Parts on a SharePoint page leveraging other collaboration tools from Microsoft.

RF IDEAS SOLUTIONS

By: Elise Mcwhirt - Account Manager - La Porte, IN

Security and Identification is rapidly growing, not only in hospitals and office settings, but also in industrial and OEM applications. With the help of Wave ID, RF IDeas was able to combine both security and identification by using employee ID badges, and any 125 KHZ or 13 MHZ tags or labels. RF IDeas is a plug and play reader that supports 45 different card types, which also include flash memory. This allows users to configure the readers output to meet their needs.

The readers are flexible for any customer, integrator or end user that may struggle with different card technologies. These low cost readers deliver the card ID in a format that applications recognize, offering limitless possibilities like: application log-on, employee identification, PLC and embedded controllers, OEMs, time and attendance, and visitor management.

A few benefits to RF IDeas readers are to improve organizational workflow, eliminate errors associated with individual identification, and eliminate manual entry. The readers are customizable; designed to work with any card solution for any size corporation, so they can be used with employees existing badges.

For additional information please contact your Kendall Electric Account Manager today.

What's New in Studio 5000 Logix Designer v24

By: Dustin Sims - Automation Specialist - Cleveland, TN

On October 31st, 2014, Rockwell Automation released Studio 5000 Logix Designer v24. Although there are many new features, the primary focus of this release was on Automation Productivity. Logix Designer has been updated to operate on the latest operating systems, organize data more effectively, and make collaboration on projects easier than ever. These new features are sure to save you time and money.

New Operating System Support

The Logix Designer application now supports Windows 8, Windows 8.1, and Windows Server 2012.

Logical Organizer

The new Logical Organizer compliments the existing Controller Organizer by providing the ability to organize and view your application in a format that is meaningful to you. This includes a powerful way to organize your code for easier duplication within a project or across new projects.
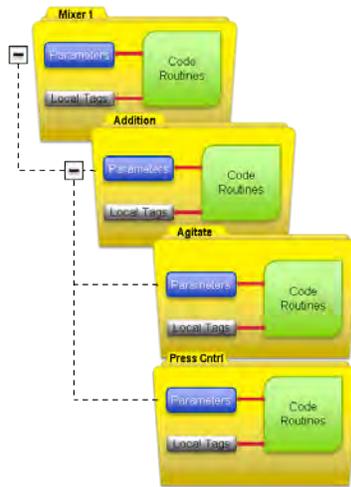
In addition to organizing your content, the Logical Organizer enables easier duplication of programs by supporting cut, copy, and paste, as well as drag and drop functionality of parent and child programs.

Compare and Merge Tool Enhancements

The Compare tool was significantly enhanced with this release to include L5X functionality. Additionally it now has the ability to handle larger data structures.

The Merge tool is a new component that allows you to select various components of two separate .ACD files and merge them into a third. This allows team members to work simultaneously on code segments and merge them when complete.
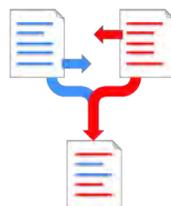
Library Management Enhancements

Library Management has been enhanced to provide better ways to deploy, reuse, and manage code for new and existing projects. These changes provide a more productive user experience that streamlines development. Specifically:

• The Partial Import online/offline function was enhanced to include management of references (tag aliases and program connections), dependencies (add-on instructions, UDTs, and tags), and conflicts (overwrite or use existing tags). It also now provides the ability to include or exclude data values.

• Several new library management features were added. These include:

 o Wild card options for find/replace

 o Shift-click & CTRL-click options

 o Paste special function for performing deep XML copy/paste

 o Stream-lined offline/online program delete

 o An increase to 1000 programs per task

Full Support of ISA 18.2 Alarming Support Model

The Logix Designer application now supports shelving, suppressed by design, and out of service functions with the ALMA and ALMD instructions. These features allow for an easy adoption of the ISA 18.2 alarming model.

Kinetix 5500 CIP-Safety Drives Supported

The Kinetix5500ERS2 CIP-safety family of EtherNet/IP CIP-motion servo drives are now supported in V24. This drive is a SIL3/PLE safe torque-off (STO) capable drive and can be configured for any of the following:

• Motion

• Safety

• Motion + Safety

This allows for one ethernet connection that handles both the network configured CIP-Safety and CIP-Motion connection to this drive. Additionally, the CIP-safety portion of the K5500ERS2 drive can be controlled by a 1756 GuardLogix L7 safety controller, while a 1756 ControlLogix L7 controller or any of the 5370 CompactLogix controllers controls the CIP-motion connection.

This drive is an extension to the K5500ERS (hardwired STO) mid-range drive. Note both the K5500ERS (revision 2.x) and the new K5500ERS2 profile, in this release, support MPL and VPL motors.

Rockwell Automation

New Program Parameters

The new program parameters feature significantly enhances the modular programming experience by allowing you to create a new level of code encapsulation.

Building upon add-on instructions and user-defined data types (UDTs) parameters, program parameters gives you the capability of passing parameters to programs using four parameter types:

- Input
- Output
- InOut
- Public

These parameters can be connected to parameters in other programs or to controller scope tags, to allow data to be passed in and out of the program. By leveraging program parameters you can build programs that are self-contained, allowing for portability between, or even within, projects.
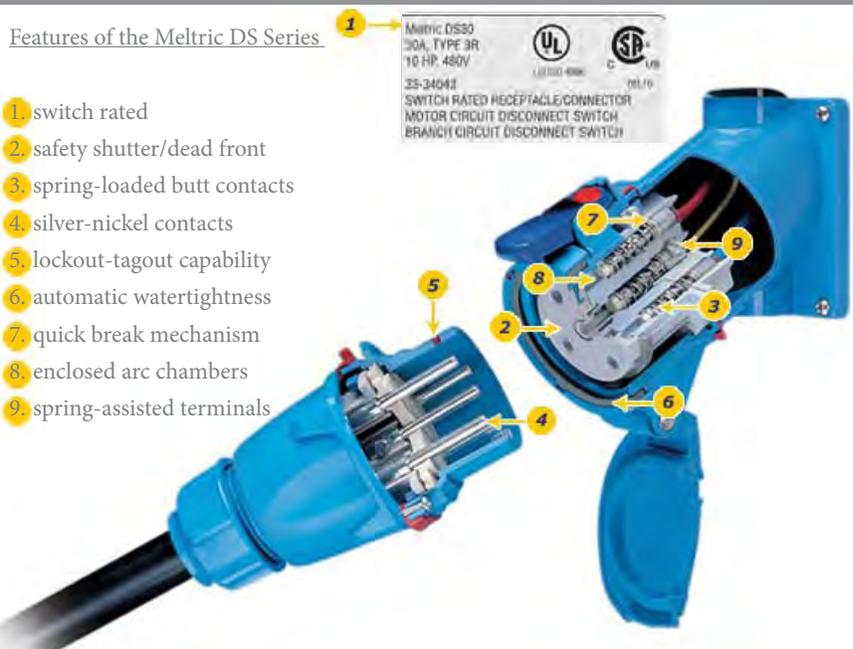
Access to Module Object

You can now reference a hardware module from within an add-on instruction using an InOut parameter with the MODULE data type. Full access to the hardware module from inside the add-on instruction allows you to generically reference the hardware module in the add-on instruction program code, and then connect to a specific hardware module through the InOut parameter in a GSV or SSV instruction. This includes access to the path to the module through the path attribute in the instruction.

You can then reuse the add-on instruction with different hardware modules without changing the add-on instruction program code. You can also write reusable, encapsulated routines to abstract the hardware so that you do not have to identify a particular hardware module in the routine. These features give you an increased amount of encapsulation which allows for a higher degree of modularity.

MELTRIC
CORPORATION

By: Scott Gusler - Account Manager - Traverse City, MI

The Meltric Decontactor series plugs & receptacles provide the safety and functionality of a switch and the convenience of a plug in the same device. They can help you meet all of the required regulations and reduce the risk of exposure to live electrical parts and electrical arcs, in a cost effective manner.

Features of the Meltric DS Series

1. switch rated
2. safety shutter/dead front
3. spring-loaded butt contacts
4. silver-nickel contacts
5. lockout-tagout capability
6. automatic watertightness
7. quick break mechanism
8. enclosed arc chambers
9. spring-assisted terminals

Meltric's Decontactor series plugs and receptacles combine the safety and functionality of a disconnect switch with the convenience of a plug and receptacle. "Switch Rated" means that they are UL and CSA rated to disconnect Branch Circuit loads up to 200A and Motor Circuit loads up to 60hp. This means that almost any electrical load - like a pump, fan, or welder - can be safely and quickly disconnected under load. They are simple to operate and never expose the operator or maintenance employee to live electricity or potential arc hazards even in wet environments.

So if you are interested in:
"Simplifying Code Compliance"
"Ensuring Safety for your Maintenance Personnel"
And at the same time:
"Reducing Equipment Downtime"
"Facilitating Quick Disconnection and Reconnection of Equipment"
Give your Kendall Electric Account Manager a call or go to www.meltric.com and check out these "Big Blue Plugs".

You will be glad that you did.

VFD Cable

By: Keith Schultz - Automation Specialist – Saginaw, MI

When did the term Variable Frequency Drive Cable become such an important component for VFD installation? We know that VFD's are well over 30 years old so why does industry use this special cable today? This wasn't always the case, so the following will review some of the history to discover the answer to this question.

VFD's or induction motor speed controllers were introduced with breakthroughs in electronic technology and advancement of power devices. This gave us the ability to control the speed of the induction motor with decent speed and torque control. As the VFD continued to evolve, Insulated Gate Bipolar Transistors (IGBTs) were introduced into the inverter technology. These new devices significantly increased switching speeds compared to the earlier Silicon Controlled Rectifier (SCR) and Gate Turn-off Thyristor (GTO) technologies. This new technology provided much better speed and torque control as well and reduced losses. So what was the issue? Over time there became more talk about motor winding failures, interference, reflective wave voltage, electromagnetic emissions and compatibility (EMC), ground current, common mode current, bearing failures and fluted bearings, and cable failures. As a result, Variable Frequency Drive (VFD) cables emerged in the 1990s to help minimize operational issues with VFD systems.

A portion of these issues can be solved by simply selecting the proper VFD cabling. However, it can be difficult determining exactly which installations require VFD cables in order to minimize problems in the system, and which will perform adequately with traditional power cable installed. It all comes down to justifying the premium for a cable solution that may or may not be needed, depending on the specifics of the installation. Let's look at a few things we know. We know that in some installations, VFD cables solve system problems - from motor issues to premature cable failure to control problems. In other installations, using standard power cable works just fine. Why the difference? These systems are extremely complex with many variables to consider, such as drive types and specifications, filter or reactor installation, cable lengths, and proximity to other electronics. Additional variables include the type of cable glands, terminations, high frequency bonding straps, and ultimately, overall installation practices. The challenge of variable frequency drive installations is that they involve many components, along with environmental and installation variations. This makes the workings of these systems seem less like well-defined science and more like black magic. While a lot of progress has been made in understanding IGBTs since they were first incorporated into drives, there are still a number of areas that require more research.

ISSUES RELATED TO OTHER ELECTRONIC SYSTEMS

Noise radiated from VFD systems can negatively affect instrumentation, radios, alarms, and other equipment. The severity of the problem is related to the proximity of this equipment to the drive system as well as the switching speed of the drive, cable layout, cable length, cable terminations and the nature of the equipment itself. There is a need to have a working understanding of what is going on here because of the multitude of variables in this equation. All too often, installation practices require inverter motor power cables to be situated in close proximity to data, communication, or control cables. With the significant number of control and automation systems installed in facilities today, these system cables can find themselves in close proximity to the inverter-motor cable at multiple points along the cable's path. Prior to IGBT technology, we could often run power cables next to these other cables, controls and automation equipment without incident. In fact, often the installation of early technology (slower switching) VFD systems could use standard power cables installed side-by-side with these other cables and things worked just fine. This fact makes upgrading an older VFD installation to a new VFD system a lot more complicated. Let's imagine a situation: you have an old VFD system with its inverter-motor cable installed in a tray right alongside other cables. Even though that tray runs in close proximity to other control and automation systems in your plant, everything is working as expected. You're in charge of upgrading your VFD drive system. If the old VFD is replaced and the existing cable system is used, will there be any issues? It's definitely something that will need to be evaluated as there are many more variables in play with today's IGBT technology drives. Older VFDs using SCR or GTO technology have rise times that measure in microseconds. Newer VFDs using IGBT technology have rise times that can be in the tens of nanoseconds. Faster switching speeds have reduced power losses in the drive, but they also produce stronger electro-magnetic (EM) fields around the cable. These stronger fields are the cause of induced voltages/currents in nearby cables and other electrical systems. In cables, this can cause dangerous currents and voltages, and could wreak havoc with the communication of data and control signals. In electrical systems, issues can range from intermittent operational issues to component failure and damage. Be aware that these "other systems" could include a nearby inverter in another VFD. To better control the Electromagnetic Interference (EMI) from the cable, shielding is required. VFD cables are designed with a continuous overall shield providing low transfer impedance at high frequency. Correctly designed and installed terminations should also provide a low resistance to ground, low impedance at high frequency, and a 360˚ electrical connection to the cable's overall shield.

SYSTEM ISSUES RELATED TO CABLES

A VFD system can put more stress on a cable's insulation, and the motor, than has been seen in traditional 60 Hz systems. This can lead to premature cable failure if not accounted for. VFD inverters do not produce sinusoidal output voltages but instead generate a series of pulses that approximate a sine wave. The higher frequency signals are the cause of the increased stress on the cable because they can cause reflected waves in the cable. Reflected waves occur because of a mismatch in the high surge impedance of the motor and the low surge impedance of the cable. The greater the mismatch, the closer the wave reflection is in amplitude to the original source waveform. The cable sees the sum of these two waveforms, which can approach twice the amplitude of the source wave. This is close to what we experience in cables connecting today's inverters and motors. This higher voltage, along with the fast rise times of the pulses, adds significant stress on the cable, decreasing cable life. Fortunately, there is a solution to the reflected wave phenomenon. By using shorter cable runs, reflected waves can be prevented from ever occurring, but not all installations can be designed with cable lengths short enough to eliminate the chance of reflected waves. If you cannot eliminate these waves, you may want to consider using a VFD cable designed to handle the additional voltage stress.

SYSTEM ISSUES RELATED TO MOTORS

Motors have been known to experience issues in modern VFD systems. Premature motor failure due to bearing fluting is a common problem. One contributing factor to bearing fluting is high motor frame voltage with respect to the inverter frame. If the inductance between motor and the VFD is large enough, the reactance at high frequencies can support voltage drops of over 100V between the motor and inverter frames. This voltage will cause a current to flow. If the motor shaft is connected via a metallic coupling to the gearbox or other machinery that is solidly grounded and near the same ground potential as the inverter frame, it is likely that shaft currents will flow due to the shaft's "better" path to ground. Sometimes called the "shaft grounding current," it may flow through the bearings of the motor, the machine bearings, or both. If that shaft grounding current flows through bearings, then bearing fluting can occur caus-

ing premature motor failure. But why would there be high voltage on the motor frame? Again, it is due to the high frequency components generated by the drive. In a nice slow analog 60 Hz system, the net current flow of the three conductors at any point in time is zero. This is not the case in a VFD system because the waveform of each phase is the approximation of a sine wave (made up of those pulses we talked about earlier) there is a net current flow (common mode current). This current originates at the inverter and must return to the inverter. We must minimize this current to keep the voltage between the motor and inverter frames as low as possible. Two ways of doing this include the use of a shielded cable that has a low transfer impedance at high frequency (reducing the impedance between the inverter frame and the motor frame); or through the use of a symmetrically designed cable with three grounds in the interstices of the power conductors (reducing the total induced current/voltage in cable grounds). The best VFD cables have both of these components in their construction to provide the best assistance in combating current flowing through bearings.

SUMMARY

There is no body or organization that decides if a cable is suitable for operation with VFDs, and no standards for what can be called a VFD cable. In general, however, the market is comprised of cables with effective insulation systems, and a variety of shielding systems that effectively reduce radiant noise and effectively withstand the dielectric stresses present due to reflected wave voltages. Many tests have been implemented by both the cable & VFD manufacturers to support the do & don'ts for cable installation. Although there are several different recommendations and solutions for cabling that may be used in VFD applications, two specific recommendations are: shielded cables (addressing issues in other electronic systems and reducing bearing currents) and cables with a symmetrical design (addressing induced currents related to bearing failure); both of which may help reduce or eliminate several performance issues in a VFD drive system. These cable attributes are found in the VFD cables offered by several different manufacturers and are available through Kendall Electric. While it's not easy to determine which installations require VFD cables, specifying cables that have been designed to mitigate the issues as discussed in this article will help to ensure that your system will operate as expected when you expect it to.

LinMot Linear Servo Motors

By: Kurt Disher - Automation Specialist - Fort Wayne, IN

Kendall Electric is pleased to announce one our newest and most innovative motion control offerings, LinMot linear motors. These motors are direct electromagnetic drives, providing high velocity linear positioning, without the use of intermediary mechanical gearboxes, spindles or belts. LinMot motors are brushless and synchronous carrying an IP67 rating, making them optimally protected from damage and contamination. They offer simple installation, and are maintenance free without internal wear components. The motor is made up of just two parts: the slider and the stator. The stator contains the motor windings, slider bearings, position sensors, temperature sensors, temperature monitoring, and microprocessor circuitry. The slider is made of neodymium magnets, which are mounted in a high-precision stainless steel tube. LinMot linear motors are extremely fast capable of speeds beyond 8 m/s (314in/sec), and very accurate, repeatable to .01mm. Frame sizes range from 23mm diameter to 70mm diameter stators. A large range of forces starting at 29N (29lb) all the way to 2500N (560lb) are available.   Slider lengths available as short as 130mm (5.1") and as long 2000mm (78"). Another great benefit of using LinMot is they are nearly crash proof. We do recommend your motion control system be designed with the appropriate safety, overtravels and interlocks to prevent damage to other parts of your machine. LinMot is a Rockwell Automation Encompass partner, which allows seamless interface to our Logix/Compactlogix PLC's. Many of the motors can be controlled by our Kinetix line of CIP Ethernet servo amplifiers.

For more information or application questions about LinMot linear motors, please contact your Kendall Electric Automation Engineer or Account Manager. We'll be glad to answer any questions you have or discuss your potential applications.

ELECTRI-FLEX SOLUTIONS

Electri-Flex Company, a leader in electrical conduit design and manufacture for more than 55 years, produces Liquatite®, the most diverse line of liquid tight flexible electrical conduit in the industry. The company offers custom design, engineering, quality assurance and testing capabilities. It is a family owned, third generation business, headquartered in Rosedale, Illinois.

Electri-flex has a broad range of product offerings. Whether you seek a specialty solution or a modification of their standard products to suit your needs, Electri-flex can help you. The Liquatite line offers the world's widest range of conduit and fittings, including jacketed and non-jacketed metallic conduit, non-metallic PVC conduit, and a non-metallic Corrlok® nylon corrugated conduit system.

Electri-flex's high quality, easy-to-install standard and custom offerings can meet such characteristics as:

- High/low temperature
- Halogen-free/low smoke
- EMI/RFI shielding
- Tight spot bending
- Continuous flexing
- UL/CSA
- Smoketight/liquidtight
- Flame retardant and self-extinguishing
- Oil resistance
- UV resistance
- Lightweight
- Specialty
- Direct burial

**By: Anita Gilliland - Account Manager
    Tuscaloosa, AL**

Electri-Flex maintains a leading edge manufacturing facility with streamlined production processes. In this facility, they perform the entire process of manufacturing flexible metallic tubing and conduit with complete extrusion capabilities. This gives Electri-flex the ability to manufacture unique designs, even if they've never been attempted before. In fact, the majority of their production tools and methods were developed in-house.

Electri-Flex has a manufacturing system that gives them complete quality control over every step in the conduit production process. Testing includes:

- Bend to rupture
- Tension strength
- Crush and impact resistance
- Flexibility
- Flammability
- Cold impact

If you are looking for a cost-effective, high quality conduit for any application, give your Kendall Electric Account Manager a call. We will work with our Electri-flex representative to provide a quality, cost effective solution, whatever your design need.

The Stratix 5700 Ethernet Switch: The Problem Solver!

By: Bill Daggett - Automation Specialist - Jackson, TN

The Problem:

I am often asked to visit a customer that has "Ethernet issues". Generally, their problems are due to an ever growing network architecture that has business system data and plant floor connectivity on the same network. It isn't well known with IT personnel that Allen Bradley's Ethernet/IP protocol uses IGMP broadcasting to attain real-time performance for Ethernet based I/O based devices. With the ease of use and wide proliferation of these I/O devices and the need to have production data on the company network, a perfect storm (broadcast storm) is being created! Another issue is that engineering and maintenance personnel are concerned with adding their control systems to the IT network and are reluctant to restructure the IP addresses, which can be a major task. But management wants their data. The network traffic must be controlled yet machine data must be accessible…but how?

A Blended Family

The Stratix 5700 switches are the solution! All Stratix 5700 managed switches are powered by Cisco Technology with Rockwell Connectivity and convenience built in. These switches are designed to make the automation professional's life easier while satisfying the management requirements for IT personnel. For automation users, these switches can be setup and managed through RSLogix 5000 software, as well as through a web browser. For IT pro's, the standard Cisco methods are all supported. Also, an SD card is utilized to store the switch's configuration and can be transferred to a replacement switch with no expertise required! That creates perfect blend of technology for engineering, maintenance, and IT.

Traffic Cop:

The Stratix 5700 switches are designed to easily detect and route Ethernet/IP broadcasting so traffic is always controlled. This avoids the problems before they start. A simple selection from the setup turns on the necessary rules for "automation" devices and alleviates the need to understand and create any special configurations. Often, simply replacing an existing switch with a Stratix 5700 and enabling this feature will solve networking issues.

Often, as a company grows, their needs change and choosing a switch with a rich feature set allows them to future-proof their network. High end features such as REP (Resilient Ethernet Protocol) and EtherChannel support allow multiple paths for data which increases reliability and speed. These features, along with many more, make the Stratix 5700 an excellent choice as the standard for an industrial Ethernet switch.

FLEXIBLE TOPOLOGIES FOR RELIABILITY

Spanning Tree Protocol (STP/RSTP/MST/PVST+/RPVST+)
- <1sec recovery time

Resilient Ethernet Protocol (REP) Ring Topology
- <70ms recovery time

Flex Links – Redundant Star Topology
- <60msec recovery time

EtherChannel
- Redundant Star Topology – <100msec recovery time
- Port link aggregation – load sharing and redundancy

NAT… What is it?

Another issue with adding existing industrial devices to the IT network is the requirement to re-address all of the Ethernet devices. This can be a major task and shouldn't be taken lightly. The NAT feature ("Network Address Translator) is designed to interface devices with incompatible addressing to an existing network *without re-addressing*. This allows the switch to map a new valid address to an existing invalid address. Simply stated, it allows the equipment to keep it's existing IP addresses by translating all traffic to and from the devices into valid IT addresses. This is particularly useful when multiple standalone networks exist with duplicate addressing on each machine. They can all keep their addresses yet become integrated on the IT network.

The Solution:

Stratix 5700 switches are available in Lite and Full feature set configurations from 6 to 20 ports to fit budgetary and application requirements. The NAT feature is available on select 10 and 20 port models. Contact your local Kendall Automation Engineer for more information and to test drive a Stratix switch. We have the experience to assist you with solving Ethernet problems as well as designing network performance and reliability into new projects.
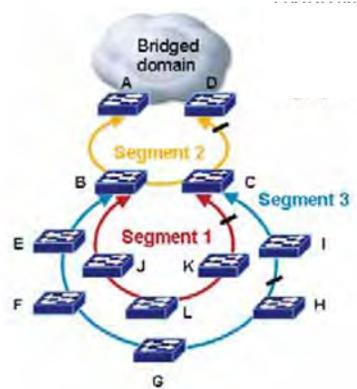
Cooper Lighting LED Outdoor Site Lighting Solutions

By: Mark Mitchell - Account Manager - Kalamazoo, MI

Are you looking for more energy saving ideas around your facility that will save you money? Maybe you have already enjoyed some of the energy savings associated with fluorescent upgrades inside your facility when you finally made the decision to get rid of those old energy hog metal halide or high pressure sodium lights. If it has been some time since you've looked at your outdoor lighting for LED upgrades, or if you never have, now is the time! Cooper Lighting has a large portfolio of options when it comes to LED solutions for the exterior of your building and site lighting, not to mention some of the rebates that the energy companies are offering for LED upgrades. In most cases these rebates can offset a very large portion of the cost of the new fixture.

Let's look at wallpacks as an example. If you have a standard 175W Metal Halide wallpack, the average life rating on the lamp is only around 6000 hours. You can replace this energy monster with a 30W LED Crosstour wallpack that is rated at 50,000 hours, and in most cases get better light than what you had before! If your energy rate is around $0.10kw/hr, this equates to almost $60/year just in energy savings on just one fixture. Multiply that over how many wallpacks you have, and the savings adds up fast. By taking into account not just the energy savings, but also not having to change lamps over the life of the fixture (huge labor savings over time), as well as the utilities rebates available to you, the payback on exterior LED upgrades starts to get very attractive.

Cooper Lighting has the Crosstour and Crosstour Maxx series of outdoor LED fixture in a range of 10W up to 85W, designed to replace anywhere from 70W – 400W Metal Halide or High Pressure Sodium fixtures. With several mounting options, the Crosstour series is not limited to just being a wallpack, they can also be arm or tenon mounted to be retrofitted onto an existing pole. There are several cutoff options depending on the light spread you are looking for based on the area you are trying to cover. Kendall Electric is stocking this family of fixtures in a wide range of sizes and options.

Let's shift gears a little and talk about barn or pole lights. I'm sure no one reading this has any or has recently seen any of those ugly putrid-colored high pressure sodium "barn lights". You know the ones, where you can't tell what color is what underneath them, and you wonder why anyone in their right mind ever installed so many of those "ugly orange-yellowish lights".

If you are tired of the high pressure sodium and have a similar application, check out the Cooper Lighting Caretaker fixture. This is a 50w LED solution designed to replace anywhere from 100-175w metal halide or high pressure sodium fixtures. It can be mounted up to 25' high for exterior applications, and still give you sufficient lighting 60' out at that height. It comes in an IP66 rated housing, and as an option you can add on an acrylic refractor to give it that "barn light" look. Kendall Electric is also stocking this fixture.

Contact your Kendall Electric Account Manager if you would like more information on any of these fixtures, or if you would like assistance coming up with a long term strategy for upgrading your lighting. We can also help you perform an energy audit to determine what your payback would be on a potential upgrade project.

Cooper Lighting
by EATON

Duraline Air Blown Fiber

By: Tim Patterson - Datapro Application Engineer - Chattanooga, TN

The Fiber Optic part of our industry is growing at a rapid rate, due to increasing demand for bandwidth as well as dependability. Fiber optics have been around for a while but one of the newest forms is air blown fiber. Duraline is a cutting edge company based out of Knoxville, Tennessee, with manufacturing located in Kentucky. They are a supplier of HDPE pipe as well as other items in the electrical world. One of their latest products was a joint venture with AFL fiber, known as eABF, which stands for enterprise Air Blown Fiber.
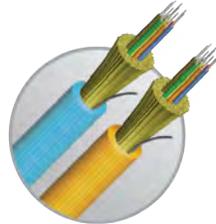
Duraline has created a type of conduit with various amounts of smaller tubes inside it to actually push or blow fiber optic cable through. This product is known as Futurepath™ and has various configurations to choose from, including indoor conduit, either plenum or non-plenum rated, outdoor conduit, and direct burial with or without a trace wire. There are many other configurations as well, for specific applications. The tubes themselves are coated on the inside to help the cable slide through with little resistance.

The advantage to using Futurepath is actually in the name. Once installed, the empty tubes can be used for future growth for the fiber system at a facility. You can install various make-ups of cable to meet the customer needs in the same pipe without worry of twisting around another cable, or of pulling too hard on existing cable. The Futurepath can be cut and the inner tubes can be routed in different directions to connect different parts of a facility. The inner tubes can also be color coded for easy tracing in junction boxes.

The cable that goes with this conduit is truly a cable, with plenum and non plenum ratings. This means you can run their fiber though an outdoor version of the Futurepath, and as you enter a building, just switch to the indoor version and there is no need to splice or terminate your fiber before continuing on. The indoor cable is available in up to 48 strands, which means in a 7-tube Future path, you could run 336 strands of fiber in one pipe. With Futurepath being available in up to 24 tubes inside one pipe, that number can grow dramatically.

Duraline eABF is not for every fiber installation, but is ideal in several applications. Some opportunities to look for are healthcare facilities, college campuses, or a customer that moves or changes the configuration of their production floor often. Airports and auto manufacturers would also be a good target for this product.

For more information, watch the video at this link: http://www.youtube.com/watch?v=PlDPComZa1Y, or contact your Kendall Electric Account Manager or Datapro Engineer. Together with your Duraline representative, we can help you with any opportunity you may have for the eABF product.

COOPER COMMERCIAL RECESSED LED RETROFIT

Cooper Lighting by EATON

By: Jeff Phillips - Account Manager - Lansing, MI

Do you remember way, way back say… about 5 years ago, when every job that came out had commercial compact fluorescents or HID on them? You know - the ones that came in 3 components; frame up kit, ballast assembly, and finally the trim piece near the completion of the job. They came in 1 and 2 lamp versions of 13w, 26w, 32w & 42w in the fluorescents, or 70W and 100W Metal Halide, depending on the ceiling height and lumen output needed.

Well, the Portfolio division of Cooper Lighting has come out with LED retrofit kits to replace many of those applications.

INTRODUCING THE PORTFOLIO LD67ART AND LD8ART

These two models will replace existing 6" and 8" opening recessed fixtures and will work on other manufacturers as well, such as Lithonia, Philips (Lightolier), and Juno. On the specification sheets for these products, you'll find the housing compatibility for certain models and series of the other manufacturers' items.

The LD67ART 6" model comes in a wide range of Lumen packages from 1000 – 3000 lumens. The LD8ART 8" model has packages ranging from 3000 – 6500 lumens. They both have four color temperature ratings of 2700, 3000, 3500 and 4000K in 80 or 90 CRI. There are several driver options depending on what your needs are for dimming. Also available are various beams spreads, in narrow beam, medium beam, wide beam and wall wash. All units come standard with a 5 year warranty.

If you feel there's an opportunity for you to upgrade, please contact your Kendall Electric Account Manager to see if these retrofits will work for your application.

Allen-Bradley Motor Control Center adds 525 Drives as a Standard Option

By: Zachary Pick - Inside Technical Sales - Kalamazoo, MI

Allen-Bradley's CENTERLINE® 2100 series motor control centers have always been a leader in reliability and innovation. CENTERLINE® MCCs feature design consistency allowing for backward compatibility, yet continue to add new technology to be an industry leader for control, safety, and connectivity. Rockwell has a vast offering of enabled devices that can be can be added as standard options to any MCC configuration. A few of these options include power monitoring, individual motor control\monitoring, and variable frequency drive control \monitoring. With the addition of a Rockwell Stratix Ethernet switch control, connectivity is made simple.

It has been a little over a year since the PowerFlex 520 drives were introduced and now the CENTERLINE 2100 motor control center is configurable and UL listed with them as a standard option. For drive applications requiring a little bit more control than a simple Volts-per-Hertz drive can offer, but not requiring the power of a PowerFlex 750 series drive, a 520 series may be a perfect fit. 520 series drives provide Sensorless Vector Control (SVC), embedded EtherNet/IP (525), and simplified programming in a compact and flexible design.

If you are interested in seeing some of the new innovative features and options, the Rockwell Automation MCC Van will be touring Alabama in March, Tennessee in April/May, and Michigan and Indiana in June. Kendall is hosting the Van Tour at several of our locations, and it will also be available to visit your place of business. Look for more details coming this spring or contact your Kendall Electric Account Manager so they can schedule a visit.

ROCKWELL AUTOMATION MCC VAN SCHEDULE

- Alabama
  March 23 – 27
- Knoxville
  April 27 – May 1
- West Tennessee
  May 4 – 8
- Saginaw area
  June 8 – 12
- Grand Rapids area
  June 15 – 19
- Kalamazoo/ Fort Wayne
  June 22 – 26

Roxtec Sealing System

By: Ryan Wales - Account Manager - Fort Wayne, IN

When considering a cabinet entry system, regardless of whether you're designing a new application or retro-fitting an old one, consider the Roxtec sealing system. Roxtec's innovative multidiameter design simplifies design, speeds up installation, and reduces the need for stock, material, and logistics.

Roxtec Systems protect life and assets against risks caused by fire, gas, water, dust, pests, and last load. The system is tested and approved by all major classification societies. The sealing modules, for use with Roxtec frames, have a multidiameter make-up allowing the user to install cables without first predetermining each cable diameter. While installing cored Roxtec sealing modules, it is important for the user to leave a 1.00mm gap for proper sealing and fitting once the compression and installation is complete.

There are a few things you should know prior to selecting the Roxtec system:
- Number of cables to be sealed
- Outside diameter of each cable
- Desired future capacity
- Size of opening
- Sealing criteria, specification or requirement
- Number of openings

Some other helpful information would be:
- The size of scope of the project
- What system have you selected and why? There might be a better/newer solution you're not familiar with.

Determining a solution for the cable entry sealant system may involve consideration of electromagnetic disturbances or noise on your communication cables. Roxtec has addressed this issue with their EMC/BG line of sealing solutions. Even something as small as a cell phone can interfere with the operation of a PLC, the backbone of process automation. Another more extreme example would be a lightning strike.

All of the Roxtec frames come standard with an earth connection which alleviates the need for additional grounding, as long as there aren't any signal reference functions in the armor of the cable. In fact, the method of bonding the cable shield at the point of entry actually reduces the cable bound interference entering the cabinet.

ROCKWELL AUTOMATION INSTALLED BASE EVALUATION

By: Nick Fletcher
Account Manager
Three Rivers, MI

Rockwell products are robust; built to last. It's commonplace to have a 25 year old PLC5 or 1336F drive running a critical process in your facility. Have you considered what may happen when this silent workhouse fails? How will you replace this outdated technology? How does that piece of technology interact with the rest of the machine, and how many of those components are obsolete? These are scary questions with even scarier ramifications if left unanswered. Fortunately, Rockwell recognized the need for a specialized approach to answering these and other migration questions.

The Rockwell Automation Installed Base Evaluation, or IBE, is a service designed to analyze and document your plant components and their current lifecycle status. First, a Rockwell Field Service Professional comes to your site and collects data as to what electrical and mechanical devices are installed. This data is then processed through customized software for analysis, determining plant lifecycle risks and overall maintenance, repair & operations inventory status. Finally, using a consultative approach, the analysis is delivered to you along with recommendations on how to move forward to develop an action plan. The reports detail what's installed, what's missing and what equipment is nearing the end of its critical life.

To learn more about this invaluable service, please contact your Kendall Electric Account Manager or visit: http://www.rockwellautomation.com/rockwellautomation/services/consulting-assessment/installed-base.page

FactoryTalk® View Machine Edition v8.0

By: Dan Strachan - Automation Specialist - Lansing, MI

FactoryTalk® View Machine addition v8.0 was released in the 3rd quarter of this year. Version 8.0 brings several new software features to the table along with setting the stage for the new PanelView Plus 7 Standard and Performance models scheduled to be released next year. This article will focus on the software enhancements starting with the expanded operating system support. Windows 8, Windows 8.1 Update and Windows 2012 Server R2 join the list of supported operating systems in this release.

For those users who have been using security with Machine Addition you are really going to like some of the new features. With version 8.00, each FactoryTalk View Machine Edition application uses its own private FactoryTalk Local Directory. This new private FactoryTalk Local Directory is simply what we've used all along as the FactoryTalk Local Directory, but with the ability for it to be unique for every Machine Edition application. So what does all that really mean? You can now copy an application from one computer to another without moving the directory, and maintain all the security that was setup in the application development.
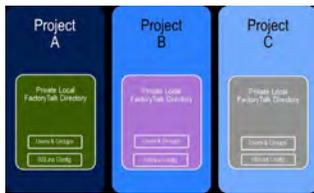
For a long time, customers have asked why they can't manage their security from within the runtime environment? Now you can through the use of the New User Management buttons that were added to this release. They are located under Objects - User Management as shown below.
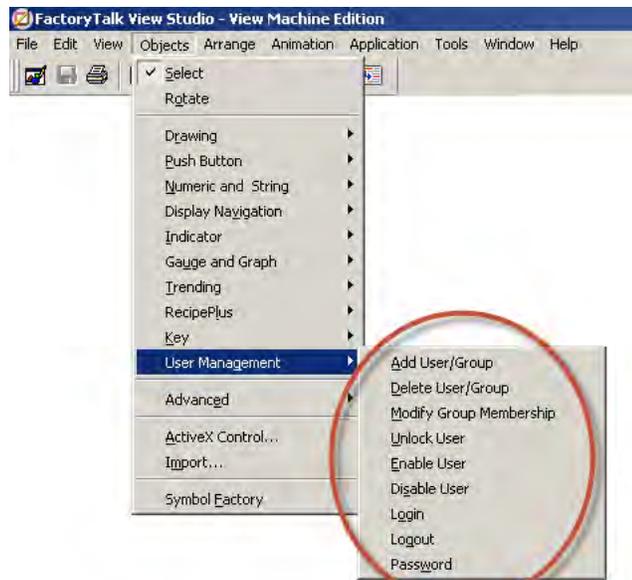
These new runtime enhancements also allow set up to integrate with the new RF IDeas readers. The RF IDeas pcProx Plus is a cutting-edge card reader that is part of the Rockwell Encompass program. The pcProx Plus combines proximity and contactless technologies into one reader. It is a reader that is capable of reading both 125 kHz proximity cards and 13.56 MHz contactless cards.

This reader eliminates the need for manual entry and provides error-free identification and security throughout the workplace. The pcProx Plus allows users to use their building access card or any 125 kHz or 13.56 MHz tags/labels for other forms of identification.

With all these new security features... what about Windows Linked Users and Windows Linked User Groups? Starting with ME 8.0, the terminal is able to authenticate users against a Domain Controller. It is done via an application protocol called LDAP (Lightweight Directory Access Protocol). LDAP is a protocol to enable access to an existing directory and it is based on a client-server model.

This release of 8.0 has really made some nice enhancements to Machine Addition and this article only depicts a few of them. For more in depth information on topics such as this take a look at the various Connection Live Workshops (formerly KTAC and Automation LunchBox) being offered at various Kendall locations. The live event (such as the one held in Lansing, MI on January 7) will go into greater detail, with demonstrations showing how to take advantage of all these new features.

All of the Kendall Connection Live dates, times, and locations can be found at: training.kendallelectric.com

Seminars, Workshops, and Events

By: Tiffany Stewart - Marketing - Portage, MI

At Kendall, we believe that continuing education is an integral part of our business and the foundation for our success. We take great pleasure in the success of our customers as well, so please contact us with your training needs for 2015. For your convenience, we've added a "Looking for Specific Training?" function on our training site where you can email us regarding specific training that you don't see on our site.

In prior issues of *The Connection*, the Rockwell Automation Training Schedule was listed on the this page. That schedule is accessible on our training site at: training.kendallelectric.com, along with a multitude of other training opportunities.

ATTEND TRAINING

In 2014, Kendall Electric hosted over 300 training seminars and workshops, including Arc Flash Awareness, PLC Wiring and Troubleshooting, Fiber Termination, Network Infrastructure & Industrial Security, Level 1 Thermogrpahy, Sensor and Drives training, and more.

ATTEND EVENTS

We held several large training events in Michigan last year, including our Vision Symposium, Mechanical Expo, and Rockwell Automation on the Move.

KENDALL CONNECTION LIVE

A large number of the classes we hosted last year were Kendall Technical Automation Club (KTAC) workshops in MI and IN, and Automation Lunchbox workshops in TN, AL and GA. We have now combined the two groups into one, called Kendall Connection Live. The schedule is located on our training site at: training.kendallelectric.com

If you have attended these monthly trainings in the past, you will continue to receive the same great training. If you have not attended before, I encourage you to do so. These seminars and workshops are designed to provide a wide range of customers with a broad techincal overview of new products and technologies. The monthly seminars build a dependable association of collegues, creating an ideal environment for discussing questions, feedback, goals, and challenges in the field.

SAVE THE DATES!

RAOTM
CHATTANOOGA, TN
JUNE 24-25, 2015

AUTOMATION FAIR 2015
CHIGAGO, IL
NOVEMBER 18-19, 2015

KENDALL ELECTRIC

ELECTRIC
A MEMBER OF THE KENDALL GROUP

WE OWN IT™

KENDALL ELECTRIC LOCATIONS

MI

Alpena, MI 49707
1240 US23 North
989-356-3411
1-800-968-3411

Battle Creek, MI 49037
131 Grand Trunk Ave
269-965-6897
Fax : 269-965-6899

Benton Harbor, MI 49022
1405 South M-139
269-925-3244
1-800-255-5214

Cadillac, MI 49601
909 W. 13th Street
231-775-9734
1-800-442-1711

Coldwater, MI 49036
646 E. Chicago Rd.
517-278-4518
1-800-695-5464

Grand Haven, MI 49417
1436 Fulton Ave.
616-844-7017

Grand Rapids, MI 49504
832 Scribner Ave., N.W.
616-459-8327
1-800-442-2523

Grand Rapids-S. MI 49512
4525 44th St. SE
616-459-8327
1-800-968-9880

Holland, MI 49424
11581 Greenway Dr.
616-396-4625
1-800-968-4625

Jenison, MI 49428
6726 Roger Dr.
616-662-0185
1-800-968-9880

Lansing, MI 48917
7633 Lanac St.
517-322-2411
1-800-292-0802

Midland, MI 48642
4600 James Savage Rd.
989-496-3600
1-800-968-3600

Muskegon, MI 49442
1699 Wierengo Dr.
231-773-6621
1-800-968-6621

Petoskey, MI 49770
1915 Fochtman Ind. Park Dr.
231-347-2646

Portage, MI 49002
5101 S. Sprinkle Rd.
269-345-0101
1-800-227-3674

Saginaw, MI 48604
5420 Davis Rd.
989-752-4181
1-800-968-4181

Sturgis, MI 49091
700 N. Centerville Rd.
269-651-9495
1-800-916-1958

Three Rivers, MI 49093
1201 W. Broadway
269-273-8644
1-800-632-2011

Traverse City, MI 49686
2458 N Aero Park Ct.
231-946-7262
1-800-968-7262

Wyoming, MI 49509
1100 58th St. SW
616-406-1555

IN

Angola, IN 46703
2795 Woodhull Drive
260-665-2098
1-800-525-2842

Auburn, IN 46706
1200 S. Grandstaff Ave.
260-927-1530
1-800-368-1017

Fort Wayne, IN 46825
415 Ley Road
260-484-0755
1-800-552-0999

Kendallville, IN 46755
109 S. Allen Chapel Rd.
260-347-3190
1-800-525-2841

La Porte, IN 46350
915 Boyd Blvd.
219-362-2019
1-800-728-4331
219- 872-0628 Mich. City

Mishawaka, IN 46544
4905 Lincolnway E.
574-259-0026
1-800-682-4528

Warsaw, IN 46580
1095 Fisher Ave.
574-267-8168
1-800-421-5214

AL

Birmingham, AL 35222
3317 5th Ave. S.
205-254-3192
1-800-605-3192

Montgomery, AL 36116
6064 Perimeter Pkwy.
334-356-1845
1-866-711-8021

Tuscaloosa, AL 35405
1323 Whigham Pl.
205-759-5716
800-263-8393

GA

Dalton, GA 30720
1020 S. Hamilton St.
706-275-4400
1-800-342-7629

TN

Chattanooga, TN 37408
2310 Rossville Blvd.
423-698-4471
1-888-263-6673

Cleveland,TN 37323
2395 Shady Lane
423-479-2639
1-800-472-4547

Jackson, TN 37801
25 American Dr.
731-423-0134
1-800-467-1155

Kingsport, TN 37660
1241 Jan Way
423-246-8151
1-800-775-3530

Knoxville, TN 37922
170 Mabry Hood Rd.
865-546-8755
1-800-532-8742

Newport, TN 37821
133 Highway 25E
423-623-5650
1-888-264-0411

Oak Ridge, TN 37830
745 Emory Valley Rd.
865-482-4906
1-800-832-8742

Pigeon Forge, TN 37863
117 Golf Rd.
865-453-4638
1-800-532-8742

Contact the Kendall Electric location nearest you
for all of your electrical needs.